

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM T. ANDERSON

Appeal No. 2006-1298
Application No. 10/631,905
Technology Center 3600

Decided: August 3, 2006



Before BAHR, LEVY and NAPPI, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal from the examiner's rejection of claims 1-13.

We AFFIRM.

BACKGROUND

The appellant's invention relates to a brake pad provided with a capacitive sensor for determining brake pad thickness or degree of wear and to a method of determining brake pad thickness using such capacitive sensor. A copy of the claims under appeal is set forth in the appendix to the appellant's brief. Claims 1 and 11 are illustrative of the claimed invention and read as follows:

1. A brake pad for a vehicle, the brake pad comprising:
 - a base member;
 - a pad portion disposed on the base member, the pad portion being constructed from a substantially non-conductive dielectric material; and
 - a first pair of capacitive plates disposed in and in contact with the pad portion and arranged such that wear of the pad portion changes the capacitance between the first pair of capacitive plates.
11. A method of determining brake pad thickness in a vehicle, the method comprising:
 - measuring a capacitance between a pair of capacitive plates;
 - wherein the pair of capacitive plates are disposed in and in contact with a portion of the brake pad subject to wear, and
 - wherein at least one of the pair of capacitive plates becomes smaller as the brake pad wears, and in a manner that changes the capacitance between the pair of plates.

The examiner relies upon the following as evidence of unpatentability:

Hanisko	US 6,366,201 B1	Apr. 2, 2002
Paielli	US 6,384,721 B1	May 7, 2002

The following rejection is before us for review.

Claims 1-13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Paielli in view of Hanisko.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding this appeal, we make reference to the examiner's answer (mailed August 24, 2005) for the examiner's complete reasoning in support of the rejection and to the appellant's brief (filed June 8, 2005) and reply brief (filed October 26, 2005) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied Paielli and Hanisko patents, and to the respective positions articulated by the appellant and the examiner. As explained below, we conclude that the references applied by the examiner are sufficient to establish that the differences between the prior art and the *claimed* invention are such that the subject matter of the claims on appeal would have been obvious to one of ordinary skill in the art at the time of the appellant's invention and that, consequently, the rejection should be sustained.

Paielli, like the appellant's invention, is directed to a capacitive brake wear sensor. Paielli's sensor 20 includes a pair of electrically conductive plates 24, 26 separated by a dielectric block 28 and embedded in a body 22, the body 22 in turn being threaded into an internally threaded opening of a brake pad 42 so as to bring face 38 of body 22 into position as a continuation of the braking surface 46 of pad 42. The body 22 is preferably of insulating material, such as molded plastic, into which the preformed assembly of plates 24, 26 and dielectric block 28 are molded. The material 28 separating the plates 24, 26 may either be a separate block or a portion of the body 22 molded between the plates (col. 1, ll. 35-39). A brake rotor 48 has a surface opposed to braking surface 46. According to Paielli, the brake rotor 48 can be a drum-type rotor, with the braking surface 46 being of generally cylindrical contour or, alternatively, a disc-type rotor having a flat braking surface parallel to and spaced from the flat braking surface 46 of pad 42, and with surface 38 coplanar with surface 46 (col. 2, ll. 49-55).

As explained by Paielli, use of brake pad 42 causes wear at the braking surface 46 and corresponding wear at surface 38 of sensor 20, including abrasion of the edges of plates 24, 26, so that wear of the brake pad and sensor body causes a change (reduction) of the electrical capacitance between plates 24, 26. Paielli also teaches that sensor body 22 and plates 24, 26 should wear as if they were part of pad 42 to provide an accurate indication of brake wear (col. 3, ll. 2-4).

In the embodiment illustrated in Figures 5 and 6 of Paielli, the sensor plates 24, 26 are connected as one arm C2 of a capacitance bridge 64, the other arms including capacitors C1, C3 and C4. Signal conditioning circuitry 74 has an output connected to gauge 52 to provide an indication of brake wear as a function of a change in capacitance at capacitor C2, while the other capacitors of bridge 64 remain fixed.

Paielli's disclosure is limited to the brake pad itself, with nominal reference to the rotor, and does not provide any details as to the structure on which the pad is mounted. Accordingly, as recognized by the examiner, Paielli lacks a base member on which the pad portion is mounted. As evidenced by Hanisko, mounting of a brake lining or pad 11 on a brake shoe or base member 15 was conventional in the art at the time of the appellant's invention. It therefore would have been obvious to one of ordinary skill in the art at the time of the appellant's invention to mount Paielli's pad, including body 22 and plates 22, 24, on a brake shoe or base member in such conventional manner.

The Paielli brake wear sensor arrangement differs from the arrangement *disclosed* in the appellant's specification in that Paielli's sensor assembly is disposed in one piece of a two-piece pad while the appellant's pad is a single-piece, unitary structure. As stated by our reviewing court, however, in *In re Hiniker Co.*, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998), "the name of the game is the claim." Limitations are not to be read into the claims from the specification. *In re Van Geuns*, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993) citing *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989).

None of the appellant's claims recites a one-piece, unitary brake pad. Independent claim 1 simply recites "a pad portion" and a pair of capacitive plates "disposed in and in contact with the pad portion." Independent claim 11 recites a pair of capacitive plates being disposed in and in contact with "a portion of the brake pad subject to wear." The examiner's position that the body 22 of Paielli, which wears as if it were part of pad 42 (col. 3, ll. 2-4) and in which the conductive plates 24, 26 and capacitors C1, C3 and C4 are embedded, is a "pad portion" as recited in claim 1 and "a portion of the brake pad subject to wear" as recited in claim 11 is well founded.

In light of the above, the arguments in the appellant's brief and reply brief fail to persuade us of any error on the part of the examiner in rejecting claims 1-9 and 11-13 as being unpatentable over Paielli in view of Hanisko. The rejection is thus sustained as to these claims.


Dependent claim 10 recites that contact between at least one of the plates and a rotor is indicative of brake pad function. While the appellant (brief, pp. 21-22) is correct that the examiner has not directly addressed this claimed feature, it is apparent that, akin to the appellant's invention, contact between the plates 24, 26 of Paielli's sensor capacitor and the rotor will short the capacitor plates to the rotor, thereby causing the sensed capacitance to be zero when the brakes are applied. We thus also sustain the rejection of claim 10 as being unpatentable over Paielli in view of Hanisko.

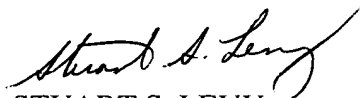
CONCLUSION

To summarize, the decision of the examiner to reject claims 1-13 is **AFFIRMED**.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED


JENNIFER D. BAHR
Administrative Patent Judge


STUART S. LEVY
Administrative Patent Judge


ROBERT NAPPI
Administrative Patent Judge

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